

# Hans Coler's Free-Energy Generators

*The low-technology magnet-based devices developed by German inventor Hans Coler in the 1920s are worthy of redevelopment by 'free-energy' researchers today.*

by Robert Nelson © 1998

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Immediately after World War II, Allied technical teams plundered all the scientific data they could find in Germany. Much of what they learned remains classified to this day. One most remarkable exception to this secrecy is the declassified British Intelligence Objectives Subcommittee (BIOS) Final Report No. 1043, Item 32: "The Invention of Hans Coler Relating to an Alleged New Source of Power" (see extract below). Coler was interviewed by R. Hurst (Ministry of Supply) and Capt. R. Sandberg (Norwegian Army):

[Naval Captain] Hans Coler is the inventor of two devices by which it is alleged that electric energy may be derived without a chemical or mechanical source of power. Since an official interest was taken in his inventions by the German Admiralty it was felt that an investigation was warranted, although normally it would be considered that such a claim could only be fraudulent... Accordingly, Coler was visited and interrogated. He proved to be cooperative and willing to discuss all details of his devices, and consented to build and put into operation a small model of the so-called *Magnetstromapparat* [Magnet Current Apparatus]...

With this device, consisting only of permanent magnets, copper coils and condensers in a static arrangement, he showed that he could obtain a tension of 450 mv for several hours... One model is said to have worked for three months locked in a room in the Norwegian Legation in Berlin in 1933... The greatest tension obtained was 12 volts.

Coler also invented another device called the *Stromzeuger* (Current Generator). He claimed that "with an input of a few watts from a dry battery, an output of 6 kW could be obtained indefinitely". The last and largest model which Coler built was destroyed by a bomb in 1945, but "Coler expressed his willingness to construct it, given the materials, the time required being about three weeks". The public version of the BIOS report does not state whether or not this was done. However, Bill Lehr (d. 1996) informed this writer that a close friend of his once saw a *Stromzeuger* in operation in the offices of MI5 in London, and a copy of the original BIOS report which is over 200 pages in length. The declassified report is a mere 30 pages long.

Hurst and Sandberg also interviewed Dr F. Modersohn who had collaborated with Coler and financed his research for 10 years. He corroborated every detail of Coler's story. The *Magnetstromapparat* was developed by Coler and von Unruh (who had died by 1945), and they were assisted by Franz Haid of Siemens-Schukert. Haid also built a working model which was seen in operation by Dr Kurt Mie (Technical College of Berlin), and Herr Fehr who was the assistant of the renowned scientist Fritz Haber. The *Magnetstromapparat* was described thus:

This device consists of six permanent magnets wound in a special way so that the circuit includes the magnet itself as well as the winding (fig. 1). These six magnet-coils are arranged in a hexagon and connected as shown in the diagram (figs. 2 & 3) in a circuit which includes two small condensers, a switch and a pair of solenoid coils, one sliding inside the other. To bring the device into operation the switch is left open, the magnets are moved slightly apart, and the sliding coil set into various positions with a wait of several minutes between adjustments. The magnets are then separated still further and the coils moved again. This process is repeated until at a critical separation an indication appears on the voltmeter. The switch is now closed, and the procedure is continued more slowly. The tension then builds up gradually to a maximum and should then remain indefinitely. The

greatest tension obtained was stated to be 12 volts...

In our presence...Coler built an apparatus as shown in figures 1-3. It is to be noted that *some of the magnets are wound in a clockwise direction looking at the N-pole (called "left"), and others in an anti-clockwise direction (called "right")*. The magnets were selected to be as nearly equal in strength as possible, and the resistance of the magnet-coil combination was checked after winding to see that this also was uniform (about 0.33 ohm)... The physical arrangement was as shown in fig. 2... A mechanical arrangement of sliders and cranks for separating the magnets evenly all around was made up...

When the magnets were at a separation of about 7 millimetres, the first small deflection was noted. The switch was closed, and by slow adjustment of the sliding coil and by increasing the separation of the magnets to just over 8 mm the tension was raised to 250 millivolts. This was maintained for another three hours when a soldered tag became disconnected and the meter slowly dropped back to zero. Soldering up the broken connection did not restore the tension. The magnets were closed up and left overnight, and the same procedure for adjustment was repeated on 2-7-46. After about three hours a deflection of 60 mv was obtained; this was maintained for more than 30 minutes, but then decreased to zero when further adjustments were tried.

During all this work, the model was completely open and nothing could be hidden in it. The breadboard and meter could be picked up and moved round the room, tilted or turned, without effect.

The apparatus would appear to be too crude to act as a receiver of broadcast energy or to operate by induction from the mains (the nearest cable was six feet away), and the result must for the moment be regarded as inexplicable...

[Coler was of the opinion that] ferromagnetism was an oscillating phenomenon, of frequency about 180 kilohertz. This oscillation took place in the magnetic circuit of the apparatus, and induced in the electrical circuit the frequency which of course depended on the value of the components used. These two phenomena interacted and gradually built up the tension... Coler stated that the strength of the magnets did not decrease during the use of the apparatus, and suggested that he was tapping a new sort of energy hitherto unknown, called *raumenergie* (space energy).

It was judged that Coler was an honest experimenter and not a fraud... The result obtained was genuine insofar as could be tested with the facilities available, but no attempt has yet been made to find an explanation of the phenomenon...

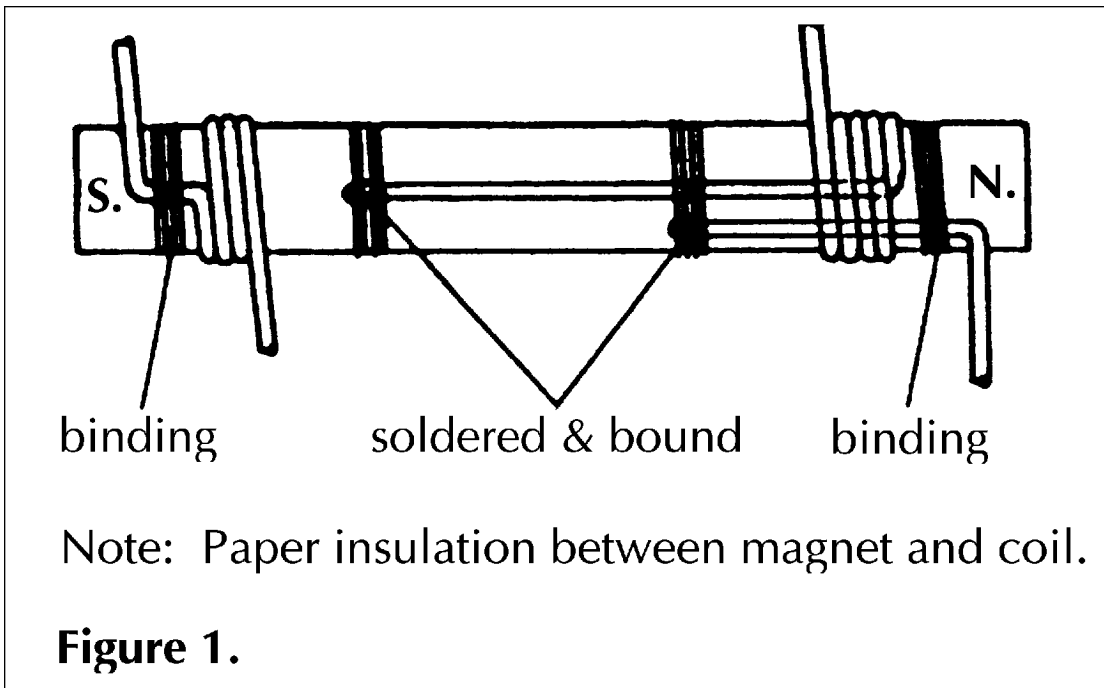
**Kloss tried to interest the German Government in the invention, but his request was refused because it was a "perpetual motion machine".**

The *Stromzeuger* was invented in 1925, at which time Coler showed a 10-watt model to Prof. Kloss in Berlin. Kloss tried to interest the

German Government in the invention, but his request was refused (as was Coler's patent application) because it was a "perpetual motion machine". The model was also seen by Prof. Schumann (of terrestrial resonance fame), Prof. Bragstad (Trondheim), and Prof. Knudsen (Copenhagen). Kloss and Schumann wrote reports explaining the physics of its operation, which apparently amplified the Barkhausen effect to a useful level. The *Stromzeuger* was described in the BIOS report as follows:

This device consists of an arrangement of magnets, flat coils and copper plates with a primary circuit energised by a small dry battery. The output from the secondary was used to light a bank of lamps, and was claimed to be many times the original input and to continue indefinitely...

Coler and von Unruh constructed a 70-watt model of the



*Stromzeuger* in 1933 and demonstrated it to Dr F. Modersohn who subsequently financed the development of the invention and established the Coler GmbH for the purpose.

In 1937, Coler built a 6 kW version of the *Stromzeuger*. In 1942, Modersohn demonstrated the device to the Research Department of the German Navy, which intervened and supplied them with materials, meters and tools. Thereafter the research was directed by Oberbaurat (Naval Construction Chief) Seysen, who assigned Dr H. Frolich to assist Coler for several months. The operation of the newly developed apparatus turned out to be more complicated than they had first thought, but progress was made. The large *Stromzeuger* was destroyed by a bomb which struck Coler's house in Kolberg (Pomerania) in 1945. Coler had been powering his house with the unit for three years.

Hurst and Sandberg gave a summary account of the *Stromzeuger* in their report:

The basic principle is that *an electron is to be regarded not only as a negatively charged particle but also as a South magnetic pole.*

The basic element is that of an open secondary circuit, capacity loaded, inductively coupled to a primary circuit. The novel feature is that the capacities are connected to the secondary core through permanent magnets, as shown in figure 4.

It is claimed that, on switching on the primary circuit, "separation of charges" takes place, i.e., Magnet 1 becomes positively charged and Magnet 2 becomes negatively charged, and that these charges are "magnetically polarised" when they are formed, owing to the presence of the magnets. On switching off the primary circuit, a "reversing current" flows in the secondary, but the magnets "do not exert a polarising effect on this reversal".

Two of these basic elements are now placed together, making a double system or stage with the plates close together in parallel planes, as shown in figure 5. The secondary windings are both exactly equal and wound in a direction such that, on switching on the primary coil, the electrons in the secondary coil flow from P<sub>1</sub> to P<sub>2</sub> [P = Plate] and F<sub>1</sub> to F<sub>2</sub> [F = Flat Spool].

It is then stated that system F<sub>1</sub> – F<sub>2</sub> merely has an inducing effect, and the useful current comes into existence in the system P<sub>1</sub> – P<sub>2</sub>.

A single stage cannot be effective, but two stages connected so that the numbers of effective North and South poles are equal will provide a basic working arrangement. More double stages can then be added to provide higher outputs.

It is then stated that as well as the normal electrons flowing from the battery and from induction when the circuit is opened or closed, "space electrons" flow from "repelling spaces" to "attracting spaces" between the plates...

Professors M. Kloss and R. Franke (Technical College of Berlin) tested the *Stromzeuger* in March 1926. Their report was included in BIOS Report No. 1043:

The apparatus...consists of: a double-row system of copper plates, a double-row system of flat spools, and a system of electromagnets to whose cores silver wires are attached and through which branch currents of the plate-system are conducted. For each of the three systems a three-part accumulator battery of 6 volts/6.5 ampere-hours capacity is provided. The plate circuit and the spool circuit are parallel so that the two batteries appertaining thereto can also be replaced by a single battery. This was ascertained...by switching off the one battery while the apparatus was working.

When asked why two batteries were used at all, Capt. Coler declared that for starting the apparatus a double

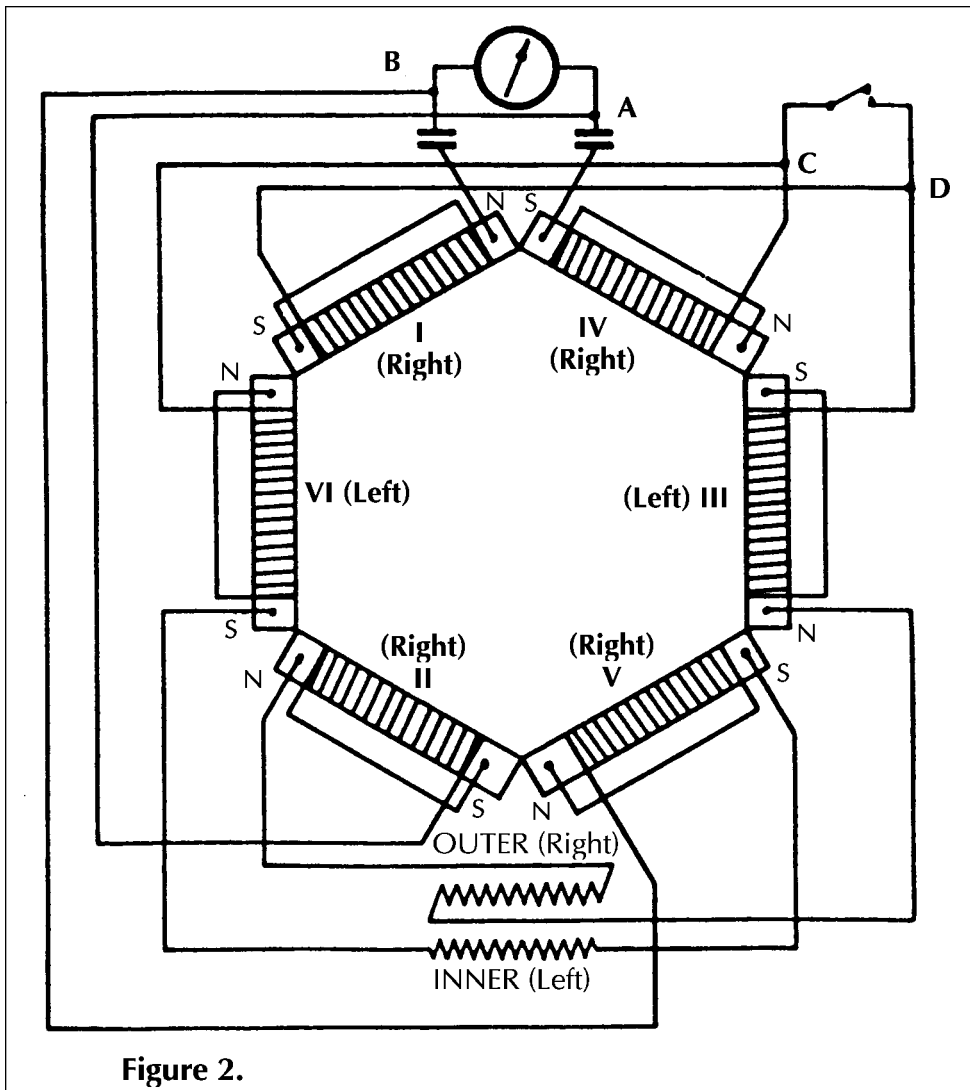


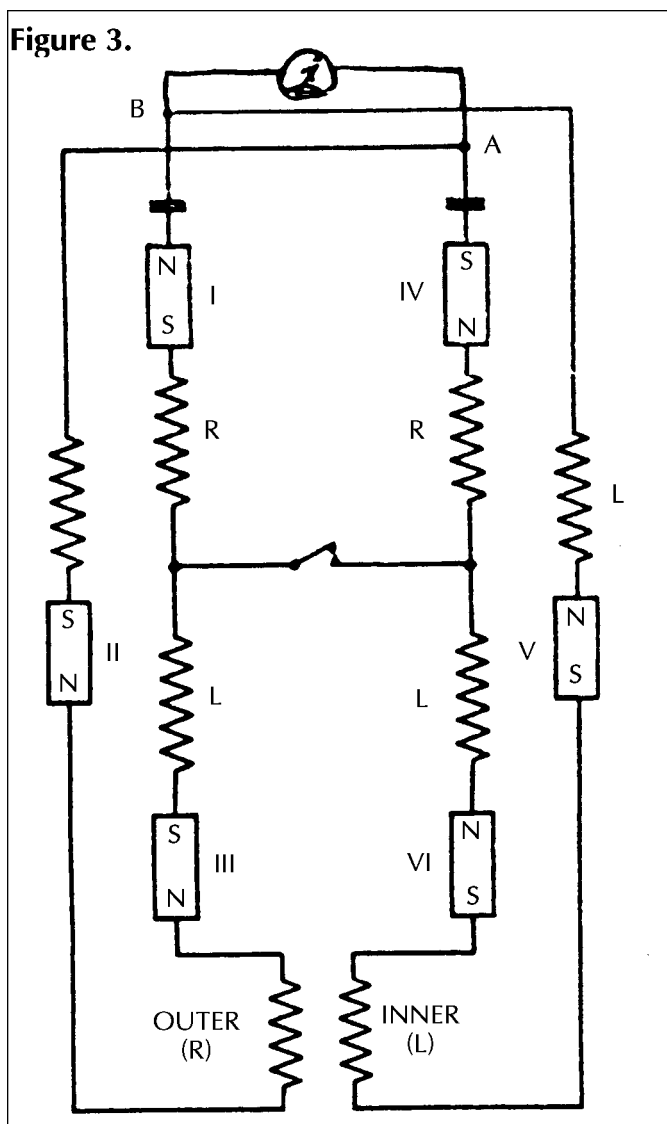
Figure 2.

battery is necessary to get a second charge-impetus after exciting with the one battery, and this for releasing the peculiar character of the apparatus. A test...confirmed this assertion in as much as the mechanism could not be started with the single battery; on the contrary, the "adjustment" of the mechanism got disturbed.

Current-indicators are built into each of the three circuits mentioned, as well as volt-meters, behind some switch resistances necessary for the "adjustment". Between the open ends of the two plate-and-spool systems there are the terminal clamps for the effective circuit, for whose loading three bulbs of 8 volts are provided. The apparatus was then put into action and, above all, the load was tested with the aid of the built-in instruments; that is, on being loaded with [two to three] lamps...

The consumption of energy in the external circuit is greater than the energy taken from the batteries. According to the circuit...the magnet-exciting circuit is fed by a special battery, completely separated from the other two circuits. Consequently, a direct comparison of efficiency and consumption of the apparatus would mean that only the sum of current of the plate circuit and of the spool circuit would count...

Figure 3.



The reception of current from the two batteries in this case...was 1.7 watts, while the consumption of the bulbs amounted to about 8 watts. Especially striking in this connection is the considerably higher current-power in the bulb circuit, being about 12 times bigger than the current coming from the two batteries...

Professor W. O. Schumann (Munich) also tested the *Stromzeuger* in 1926. His six-page analysis was included in an appendix of the BIOS Report:

The apparatus in question principally consists of two parallel-connected spools which, being bifilarly wound in a special way, are magnetically linked together. One of these spools is composed of copper sheets (the spool is called "plate spool"); the other one of a number of thin parallel-connected isolated wires (called "spool winding"), running parallel at small intervals to the plates. Both spools can be fed by separate batteries; at least two batteries are necessary to put the spools to work.

The spools are arranged in two halves each, according to the bifilar winding system. The batteries are attached to the starting points, and the current-receivers to the parallel-connected ends. Intercommunications are connected between parallel windings of the two halves of the plate spool which contain iron rods with silver connections. These rods are magnetised by a special battery through applied windings (called "exciter windings").

According to the statement of the inventor, the production of energy principally takes place in these iron rods, and the winding of the spools plays an important part in it... (The form of the spool is a long, small rectangle.)

The inventor stated that the apparatus in its installation was very sensitive, especially with regard to the magnetic conditions of the iron cores, and that a wrong treatment [internal measurements] would cause interferences which would be wearisome and very difficult to be eliminated.

The exciter winding is electrically completely separated from the other windings...

Installed in the apparatus were three current meters for the currents from the three batteries, and, furthermore, current and volt meters...for the current receivers. One and two bulbs respectively were employed for this purpose...

As a striking fact it should be mentioned that the spool circuit, having been at first always switched on alone, received a current of 104 mA. As soon as plates and exciter circuit additionally and simultaneously were turned on, as, according to the inventor, the apparatus demands it, the current in the spool circuit [came] down to about 27 mA...

After the present examination, carried through as carefully as [possible], I must surmise that we have to face the exploitation of a new source of energy whose further developments can be of an immense importance... I believe that a further development of the apparatus...will prove justified and of great importance.

In 1943, Hans Coler and Dr Heinz Frohlich made a report to the Research Department of the Admiralty (OKM) in Berlin, in which they described the *Stromzeuger*:

The apparatus consists of three principal circuits which are interwound and intercoupled in a peculiar way. Some of these are divided again into single subsidiary circuits

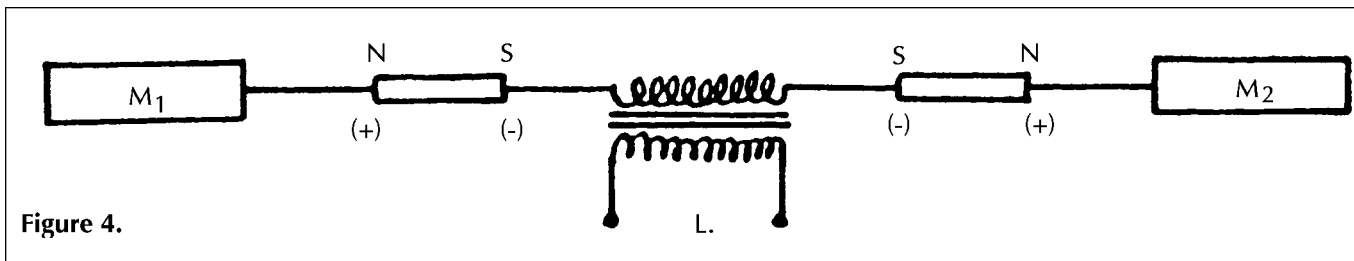


Figure 4.

which evidently have all to be brought into resonance with one another.

The principal circuits (called the "anchor") in which the energy gain probably occurs, consist of metal plates between which transformer coils are connected, the whole being connected to one large coil plate. On each of the single windings on this is coupled a large flat coil (called "field"). These flat coils are interwound in two groups; these groups represent the turns of a transformer. This couples, on one hand, on the flat coils of the other group (as secondary coils), and, on the other hand, on the anchor-plate coil which is placed between them. The third electrically independent circuit (called "directing circuit") regulates this transference. Figure 1 [not included in the BIOS Report] shows diagrammatically and in plan these interwound parts. Figure 2, the so-called basic diagram, shows the connections between these different parts. This basic diagram shows the conditions necessary for self-interruption. In consequence of this arrangement, different types of currents are created in different conductors (pulsed DC, AC, etc.).

The transformer coils, connected between the anchor plates, are connected in a peculiar way through thin-permanent magnet rods. Their main object seems to be to pre-magnetise the transformer cores. It is, however, very probable that they are also connected with the Barkhausen effect...

In his report, Coler also described the following simple, significant experiment:

Given, a solenoid consisting of two windings, one upon the other, of the same length and number of turns, enclosing a soft iron cylindrical core. Firmly attached to one end of the core is a pre-magnetised steel rod. If an alternating

current is passed through one of these coils, acting as primary, the residual magnetism of the steel rod is strengthened during one half-cycle through the magnetism induced in the core; during the other half it is weakened. If now the other winding is connected in series with the pre-magnetised steel rod (as secondary coil) in such a way that the secondary current must pass through the magnet, one half-cycle of the secondary current must be more or less subdued; in other words, a rectifying effect must be created.

It may be remembered that, according to measurement by Profs Kloss and Schumann, a high-frequency pulsed direct current (about 180 kc) is flowing in the output resistance of the apparatus, for the creation of which no other explanation is possible.

Another experiment with two double-wound solenoids, connected in series, revealed that "in such a secondary circuit a considerable DC component exists which can be strengthened by means which we shall not go into here...". Experiments were conducted with the plate and flat coil unit to test their interactions:

As the plates are not only charged as condensers but also have directed currents passing through them, it had to be assumed that their mutual influences not only consisted of a condenser effect but that they also created a magnetic field... It appeared that the *Ankertrakte* AC or BD are not all to be considered as oscillating units, but that the single group systems, consisting of plate to anchor coils to plate, already represent independent oscillation circuits. According to this, the apparatus contained ten such oscillation circuits... In order to make the apparatus work, the harmony of all oscillating circuits in their individual frequencies would evidently be necessary, at least within certain limits determined by the suppression in question...

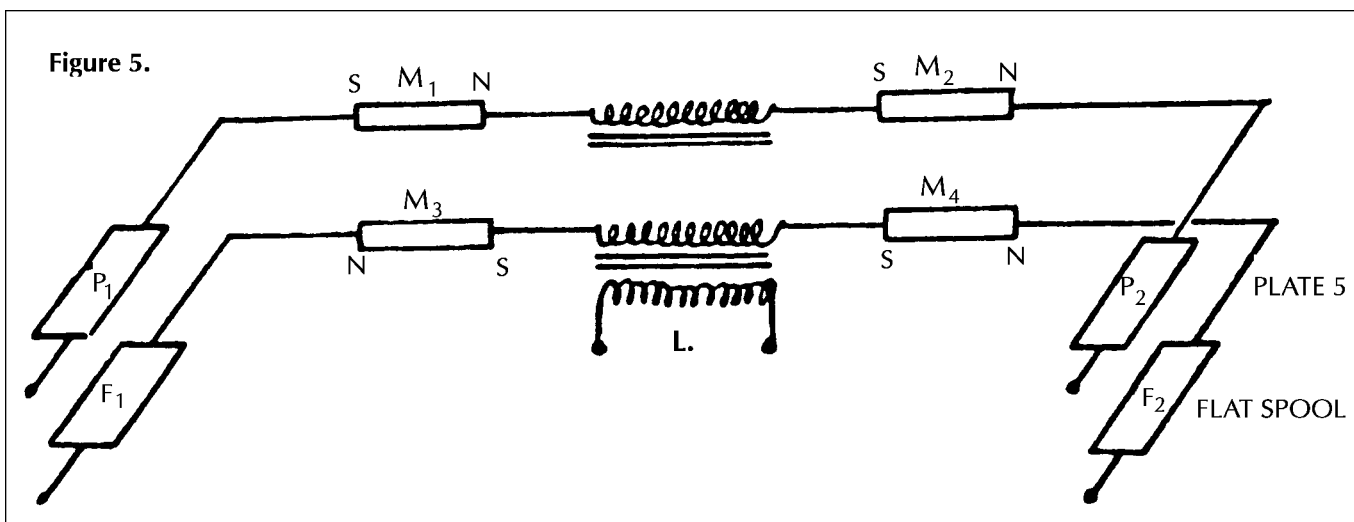


Figure 5.

The previous occasional success must be considered as due to chance.

The mutual influence of the flat coils upon one another could not, on the other hand, easily be examined because despite the great distance between the windings (25 mm) they have remarkably great apparent resistance (about 200 ohms at 10 kc).

It appeared that the power factor of both of the flat coils wound 1:1, in consequence of their peculiar interwinding has the astonishingly high value of 0.85. The value of the power factor was at a maximum at 10 kc, at which frequency the most favourable matching of the impedance... was obtained.

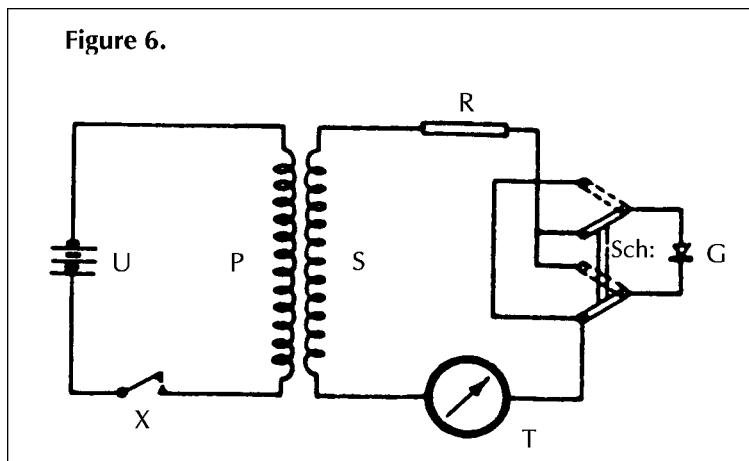
The repeated mention of 10 kc is also found in the scientific literature on the Barkhausen effect. After all his experiments and measurements, Coler offered the following explanation of the way in which the apparatus works:

Due to the connecting of the batteries, a current impulse is induced in the anchor circuit which charges the plates. The discharge circuit from the plates causes electrical interruption of short duration of the battery current in the field circuit, which furthermore inductively interrupts, or changes the direction of, the battery current in the directing current for a short time. The electromagnetic field induced by this process in the directing circuit by its dissipation, induces over the field circuit a current in the anchor circuit, recharging the plates, and so forth.

Due to the influence of the Barkhausen effect, each single process has an impulse-like character, and the necessary change of phase is produced to allow the regularity of the process.

Due to a source, up to the present not investigated and not explainable by existing scientific theories, an additional quantity of energy is freed during each cycle which leads to a continual raising of the amplitude of the mutual processes until the magnetic cores are saturated.

From the fact that in the resistance of the apparatus, pulsed direct current is flowing...[t]here is possibly an up-to-now unknown rectifying effect, or, alternatively, the gain in energy is produced only during one half of the cycle, either during the charging or discharging of the plates. The activity in the apparatus must take place *in the ten oscillation circuits in a phase-like manner...* No technical means were available to make the necessary tuning adjustments.



It is clear from the above that the success of the inventor up to now could only be due to chance, or happy accident. The necessity, therefore, arises to transfer the apparatus from the state of empirical development, with sufficient technical means and based on results of an exact basic research, to a state of working procedure which can be controlled.

Other experiments, conducted by Frohlich with the arrangement in figure 6, convinced Coler that his theory was correct:

The result obtained with this experimental arrangement...was the clear proof of a considerably larger energy during opening (intake), compared with closing impulses... The [10–50%] difference is always in favour of the opening impulse... Consequently, this observation can also be considered as a proof of the fact that an energy difference exists... [There is a] considerable, but extremely short, energy peak of the opening impulse... My development of the Space Energy Receiver was based on this and was successful.

In the 1980s, George Hathaway of PACE (Planetary Association for Clean Energy) constructed a *Magnetstromapparat* which produced 50 millivolts and he demonstrated it at unconventional technology conferences. There has been no news of further development.

The Barkhausen effect, upon which the Coler inventions work, is a low-field phenomenon that occurs when a ferromagnetic material is subjected to a change in the applied magnetic field. A series of discontinuous steps develop, corresponding to reversals in magnetisation domain volumes from  $10^{-10}$  to  $10^{-8}$  cm<sup>3</sup>. The size of the discontinuities can be increased by stressing the magnet. Possibly the soft iron magnets which Coler used were subjected to such stress by ultrasonic magnetostriction from the coil windings at the 180 kHz resonant frequency.

One can only wonder why British Intelligence declassified the Coler report, but we can be glad they did. If only they had seen fit to include more schematics of the *Stromzeuger*, because the available diagrams are woefully inadequate. At least we now know a few key facts:

- 1) Ferromagnetism resonates at 180 kilohertz.
- 2) The Barkhausen effect can be amplified to provide useful power (10 kHz is another key frequency here).
- 3) "...some of the magnets are wound in a clockwise direction looking at the N-pole (called 'left') and others in an anti-clockwise direction (called 'right')." The resistance of the magnet-coil combination was about 0.33 ohm.

4) "The basic principle is that an electron is to be regarded not only as a negatively charged particle but also as a South magnetic pole."

5) "The novel feature is that the capacities are connected to the secondary core *through permanent magnets...*"

6) "There is a considerable, but extremely short, energy peak of the opening impulse."

It is to be hoped that the *Stromzeuger* can be redeveloped, since it is a relatively simple, low-technology device requiring no exotic components. It should not be left "to chance, or happy accident", as it was for Hans Coler.

**Note:**

The BIOS Report No. 1043 is available from Rex Research (PO Box 19250, Jean NV 89019, USA) at a cost of US\$9.00 postpaid, or US\$11.00 overseas.